

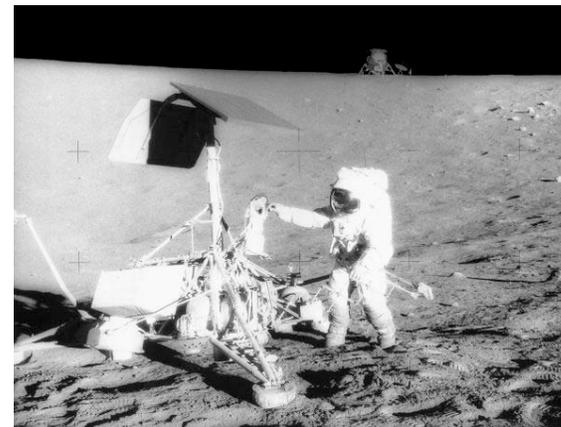
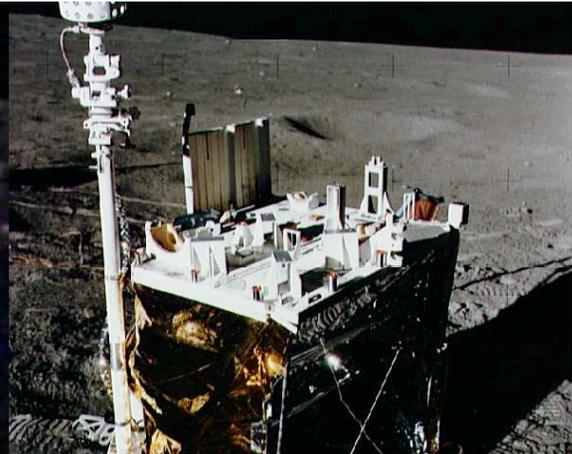
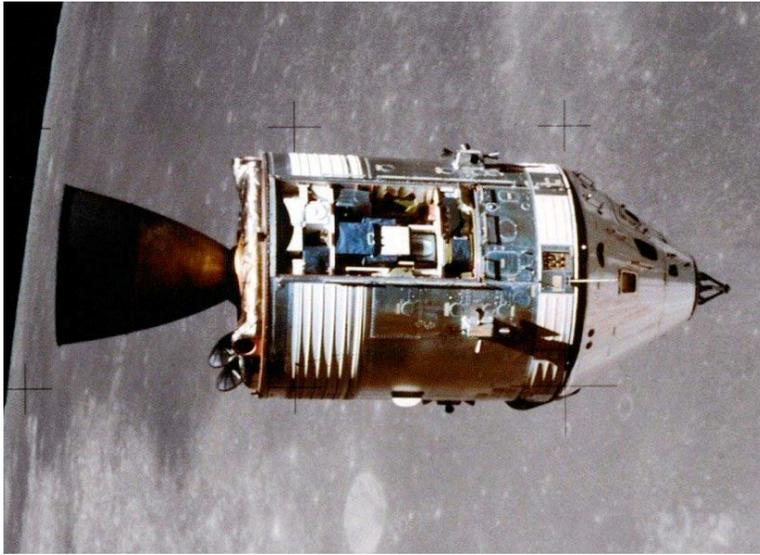
# Conducting Science in a Program of Human Exploration

A composite image showing a blue and white Earth in the center and a reddish-orange Mars to its right, set against a black background. The bottom of the image shows a grey, cratered lunar surface.

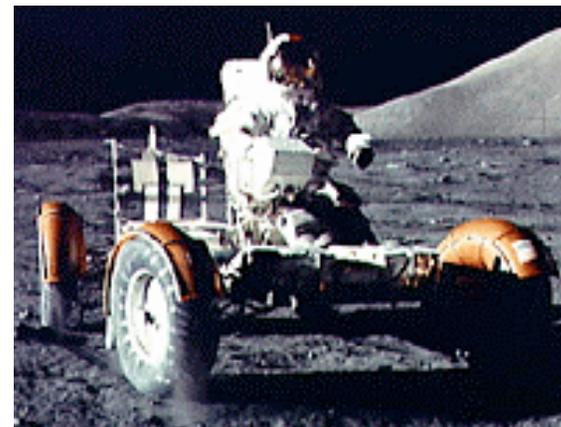
## The Shuttle Mission: Enabling Science & Exploration

First: A Few General Lessons Learned From  
Apollo, Skylab, ASTP and Shuttle/Spacelab

Noel W. Hinnens  
Masters Forum 18  
May 13, 2009



**Apollo  
Science:  
Spectacular,  
Forefront  
And  
Productive**



**Space Physics**



**Con:  
Jim  
Van  
Allen**

Apollo Era

There will  
**ALWAYS** be diverse  
opinions as to  
the merits of  
doing science in  
human space flight  
programs

**Pro:  
Gene  
Shoe-  
maker**

Gene Shoemaker donning Bell ro

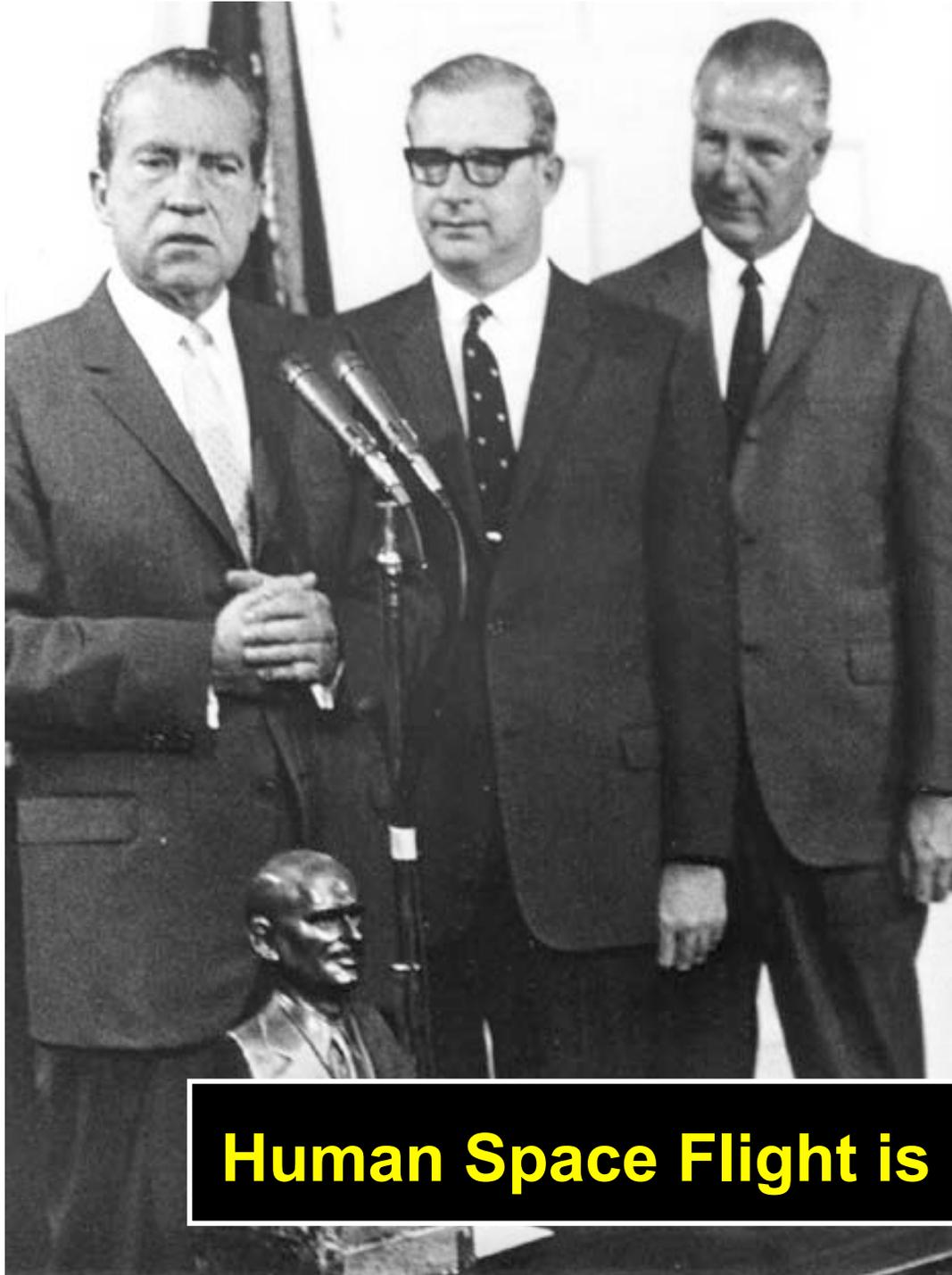


**Geology  
&  
Geophysics**

# Key Elements of Successful Apollo Science

<u>Apollo Era</u>	<u>Now</u> 	<u>Future</u>
• Funding Was <u>More</u> Than Adequate	X 	X
• Apollo Was Not a “Threat” to Science	X 	?
• Lunar Science—Exciting; Good “Community” Support	X 	?
• Joint Program Management Between Science and Human Exploration – Each Doing What it Does Best	X 	?
• Apollo Management and NASA Leadership Were Vocal Advocates of Science	X 	?

**Despite the Lack of Political Imperative,  
The VSE Should Strive to Emulate Apollo**



**Pres. Nixon, NASA Adm. Paine,  
& VP Agnew  
April 5, 1969**

**Pres. Nixon Buying the Shuttle  
(and Not a Space Station)  
Jan. 5, 1972**



**Human Space Flight is Inherently Political**

# Science/Space Flight Post-Apollo



## Skylab: Apollo Telescope Mount – 1973/1974

Joint OMSF/OSS Program Office

Science by OSS; Funding, Mngt. by OMSF

“Successful” Results & Relationship

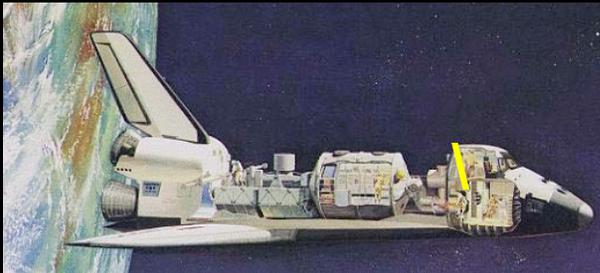


## Apollo-Soyuz Test Project - 1975

Joint OMSF/OSS Program Office

Science by OSS; Funding, Mngt. by OMSF

“Successful” Results & Relationship after  
a review by the Space Science Board



## Shuttle/Spacelab – 1981 - Present

All Things to All People; No Joint Office

OSS Selected, Managed and Funded Science

Non-Uniform Support by Science Community

Variable results (to follow in MF 18)

# An Unmitigated Success

When Proposed, Servicing Was But a Promise



Shuttle Servicing Save(s)d Hubble's Butt

# Conducting Science in a Program of Human Exploration



A Surmountable Challenge  
If We Learn Lessons From  
Lessons Learned

